

REMARKS

Claims 1-5 are in the case and stand rejected under 35 USC § 103 over USAN 2001/0021019 to Nara et al. The rejections are respectfully traversed. Reconsideration and allowance of the claims are respectfully requested.

COMMENTS ON EXAMINER'S RESPONSE TO ARGUMENTS

The examiner's response has been carefully considered, but applicants continue to respectfully assert that a *prima facie* case of obviousness has not been made. The basis for applicants' assertion, as described in more detail in the following paragraphs of this section, is that (1) Nara et al. do not describe all the steps of the method as presently claimed, and that (2) the matter that the examiner considers to be obvious is actually not obvious at all.

1. *Nara et al. do not describe the method as claimed*

Paragraph [0003] of Nara et al. states in relevant part that "a method of inspecting the circuit pattern of the semiconductor wafer in the manufacturing step of the semiconductor device has conventionally been used." Thus, this paragraph of Nara et al. only broadly alludes to wafer inspection, but is silent as to how such inspection is conducted. Nara et al. describe the construction and operation of an inspection apparatus, but do not spend much time on other aspects of wafer inspection, such as analysis and the like. Rather, the disclosure of Nara et al. is in regard to their apparatus. The cited paragraph of Nara et al. is an acknowledgement that inspecting wafers is a good thing in the integrated circuit fabrication industry. But there is nothing in the paragraph that indicates how the inspection should be performed.

Nara et al. thereafter present a summary of the inspection systems that were currently available, and then describe their inspection system at length. But again, Nara et al. do not describe the method as presently claimed, which could be implemented on almost any inspection system. Thus, Nara et al. could only be used in a 103 rejection, because Nara et al. do not describe the inspection process – only that inspection is desirable (and that their apparatus is particularly desirable). Therefore, it is necessary to

add additional information to Nara et al. in order to create a *prima facie* case of unpatentability.

2. *The “obvious” matter isn’t so obvious*

The additional information that the examiner has chosen to add to the disclosure of Nara et al. comes in the form of statements about what is obvious in the art. Applicants respectfully generally traverse these statements and assert that the stated knowledge really isn’t obvious at all. These statements are discussed individually below.

“the logical division of a wafer in different inspection sections is well known and obvious”

While this statement might be true on its face, the implications of this statement are not true. The examiner comments in one portion of the office action that some of the matter of the dependent claims appears to be “well known and appropriate” for its use. Applicants assert that most inventions are comprised entirely of elements that are all well known and appropriate for their use, but which are combined in a novel and nonobvious manner. It is the combination that makes the jumble of known elements (be they parts of a machine or steps of a method) patentable.

However, the implication of the examiner’s statement above is that dividing a wafer into sections for inspection is well known and obvious *in combination with the other elements*, but this isn’t true. Not only do applicants claim a logical division of the substrate, but the analysis of the defect information is performed on a zone by zone basis, and then the zonal defect level classifications are analyzed. This comprises a different method (combination) from that which has been previously disclosed.

“if there is a plurality of dies located on a wafer, then each die will be inspected separately from one another”

Dice are not inspected separately. Instead, an optical system scans along two parallel scan lines, comparing one to another. Any difference is treated as an anomaly and potential defect. But these scan lines are not performed on a die by die basis, instead they are performed across the entire breadth of the wafer, cutting a swath across many

different dice. Some systems have only one scan line, the information from which is compared to something other than a live scan line, but in these systems also the scan is performed across the entire surface of the substrate, without regard to die boundaries.

“they will be inspected in a similar manner as indicated by Nara et al. above”

Applicants again assert the paragraph [0023] of Nara et al. does not describe any manner of inspection, only that it is preferred to conduct inspections.

“it is well within the knowledge of anyone ... that if one carrying out defect inspection as disclosed by Naya et al. above”

Applicants again assert the paragraph [0023] of Nara et al. does not describe any manner of inspection, only that it is preferred to conduct inspections.

“once a defect is detected, some form of information regarding that defect must be present”

Applicants concur that some information about the defect is typically present. However, that information does not constitute breaking the substrate into logical zones and performing the zonal analysis as described in combination in the claims.

“the classification of defects within separate zones ... is neither unique nor novel as previously indicated”

Applicants assert that the arguments “previously indicated” by the examiner are both unsubstantiated and insufficient, as described above, and thus cannot be used to make such a conclusion.

“it is obvious that when inspecting a semiconductor wafer, some form of an analysis method will be used”

Applicants agree that it is obvious to analyze the results of an inspection, but there are many different methods for analysis, and applicants assert that their combination of analysis steps as claimed is both novel and nonobvious, and that the cited reference and

conclusions about what is and is not obvious have not made out a *prima facie* case otherwise.

“as previously indicated by the examiner, this logical division would be an obvious and ... logical step”

Applicants again assert that the arguments “previously indicated” are not substantiated and are insufficient on which to base the conclusion.

Summary Of “Obviousness Statements”

The comments by the examiner appear to fall into the following categories:

1. There is a sweeping assumption about what is taught by the final sentence of paragraph [0023] of Nara et al.
2. There are statements about the obviousness of an individual step of the method, from which are drawn conclusions that the entire method (combination of steps) is obvious because an individual step of the method is known in the art.
3. There are conclusory and unsubstantiated statements about what is obvious in the art.
4. There are multiple references back to the comments as classified above, relying upon them as proof in later portions of the argument.

Applicants again assert that these types of arguments do not make out a *prima facie* case of obviousness or unpatentability, and that the evidence relied upon in the office action is insufficient to support the conclusions drawn and the rejections made.

NEW COMMENTS IN REGARD TO 103 REJECTIONS

The MPEP outlines three conditions that must be met for a *prima facie* case of obviousness to be made out. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must

be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations.

1. Motivation

The present claims are directed toward a novel method inspecting substrates. Thus, the claims recite certain elements (steps of the method) in combination. Applicants do not at this time assert that any one of these elements, taken alone, is completely novel. However, “[c]ombination claims can consist of new combinations of old elements . . . for it may be that the combination of the old elements is novel and patentable.” *Clearstream Wastewater Sys. v. Hydro-Action, Inc.*, 206 F.3d 1440, 1444, 54 USPQ2d 1185, 1189 (Fed. Cir. 2000); *Intel Corp. v. U.S. Int’l Trade Comm.*, 946 F.2d 821, 842, 20 USPQ2d 1161, 1179 (Fed. Cir. 1991) (“That all elements of an invention may have been old . . . is however, simply irrelevant. Virtually all inventions are combinations and virtually all are combinations of old elements.”).

Thus, it might be possible to find each and every element somewhere in the prior art, such as with a key word search of a computerized database. However, doing such a search would merely yield a laundry list of the basic elements from which the various embodiments of the present invention are constructed, without any motivation to make the combinations such as are described in the claims. Thus, applicants assert that they have combined these possibly-known elements in a novel and nonobvious manner.

In the present action, however, the examiner has not combined any references, but instead has drawn overly-broad conclusions from a single reference, and then stated (in an unsubstantiated manner) that everything else is obvious. Thus, there has been no attention to the necessary step of describing the motivation for the combination at all.

2. Expectation of Success

It is a requirement in making out a *prima facie* case of obviousness that there must be some expectation of success of the combination constructed by the examiner. However, the combination proposed by the examiner would have no such expectation of success, because it is based almost entirely upon assumptions made by the examiner

about what is obvious. The examiner has an obligation to cite references in support of these statements, or a *prima facie* case is not made out.

3. *All Limitations Taught or Suggested*

It is a requirement in making out a *prima facie* case of obviousness that all of the limitations of the claims must be taught or suggested by the cited references. However, the examiner has omitted some of the claimed elements, and has merely described them as obvious. This, however, is insufficient. It is necessary to document elements that are obvious, and provide the motivation for their combination, in order to make out a *prima facie* case of obviousness.

For all the reasons as given above, applicants renew their assertion that a *prima facie* case of obviousness has not been made out, and that the claims are patentable. Reconsideration and allowance of the claims are respectfully requested.

OLD COMMENTS IN REGARD TO 103 REJECTIONS

Independent claim 1 claims, *inter alia*, a method for analyzing defect information on a substrate by (1) logically dividing the substrate into zones, (2) detecting defects on the substrate to produce the defect information, (3) analyzing the defect information from the substrate on a zone by zone basis to produce defect level classifications for the defects within each zone, and (4) analyzing the zonal defect level classifications according to at least one analysis method.

Applicants assert that the examiner has not made out a *prima facie* case of obviousness. The only specific reference to the teachings of Nara et al. is to paragraph [0003], which is cited to only support the notion that “the substrate being inspected has thereon a plurality of circuit patterns.” None of the locations of the other asserted teachings of Nara et al. are referenced in the document.

Applicants assert that Nara et al. does not contain the teachings as asserted by the examiner, but invite the examiner to provide specific reference to those teachings, if they do in fact exist. In the absence of such specific references, applicants traverse the assertions of the examiner as to the teachings of Nara et al.

For example, Nara et al. do not appear to teach step (3) above, which is the step of *analyzing* the defect information from the substrate *on a zone by zone basis* to produce defect level classifications for the defects *within each zone*. Nara et al. do not appear to teach (a) the analysis of defect information on a zone by zone basis, or (b) the production of defect level classifications within each zone.

Thus, claim 1 patentably defines over Nara et al. Reconsideration and allowance of claim 1 are respectfully requested. Dependent claims 2-5 depend from independent claim 1, and contain additional important aspects of the invention. Therefore, dependent claims 2-5 patentably define over Nara et al. Reconsideration and allowance of dependent claims 2-5 are respectfully requested.

Applicants further assert that the elements of the dependent claims have not been adequately considered or found in the reference by the examiner. For example, claim 5 recites that the defect information is logically divided into configurable zones *after* the defects on the substrate have been detected. Nara et al. does not appear to teach the logical division of defect information into zones *after* the detection of the defects. The examiner is again invited to more specifically indicate those portions of Nara et al. wherein he believes these teaches to be recited.


CONCLUSION

Applicants assert that the claims of the present application patentably define over the prior art made of record and not relied upon for the same reasons as given above. Applicants respectfully submit that a full and complete response to the office action is provided herein, and that the application is now fully in condition for allowance. Action in accordance therewith is respectfully requested.

In the event this response is not timely filed, applicants hereby petition for the appropriate extension of time. If any fees are required by this response, such fees may be charged to deposit account 12-2355.

Sincerely,

LUEDEKA, NEELY & GRAHAM, P.C.

By: 

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